AN INVESTIGATION INTO THE CHALLENGES FACING RETURNS ON INVESTMENT IN THE SMALL SCALE POULTRY SECTOR: A SURVEY OF POULTRY FARMERS IN TETU LOCATION, NYERI COUNTY.

NDURIRI MARY WANJIRA
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KENYATTA UNIVERSITY
OCT 2013.
DECLARATION

This research is my original work and to the best of my knowledge, it has not been presented in any university for the award of a degree.

Signature........................................ Date...........................................

Mary Nduriri

Supervisor

This research project proposal has been submitted for examination with my approval as university supervisor.

Jane Esther Karugu

Signature........................................ Date...........................................

CHAIRMAN OF BUSINESS ADMINISTRATION DEPARTMENT

MUATHE SMA (PHD)

Signature........................................ Date...........................................

DATE...........................................
I wish to thank God almighty for his care and blessings and for giving me the strength to go through this entire course and in particular this proposal. I am grateful to my supervisor Esther Karugu and John Mungai who professionally and skillfully supported and guided me on how to write a good research proposal. I would like to express my sincere gratitude to my dear husband and children for their continued support. My husband's patience and dedication has particularly enabled me to complete the project. I appreciate the immense support from the various Small scale poultry farmers, ministry of livestock officers, Tetu Location, and Kenyatta University library staff. Nyeri campus, who willingly co-operated when I was in need of materials in the library.
Poultry production is one of the most important economic activity to the small scale farmers in Kenya. However, numerous constraints have resulted in low production of poultry thus failing to meet the increasing demand of poultry products. This study seeks to investigate the challenges that affect the returns of the small scale poultry sector within Tetu Location, in Nyeri County. The study identified four objectives namely: To examine the effects of marketing on the returns of the poultry sector, to establish the effects of the costs of inputs on the returns of the poultry sector, to investigate the effects of disease, pests, and predators on the returns of the poultry farming and finally, to assess the effect of poultry management skills on the returns on poultry sector. To achieve the objectives the study will adopt the descriptive survey design. The target population will consist of 812 poultry farmers from Tetu location. The study will use simple stratified sampling technique to draw a representative sample of 81 respondents from the population of 812 poultry farmers in Tetu location. The five sub-locations making up the Tetu location will be used to proportionately allocate the sample sizes. The sub-locations included in the study will be Ichagachiru, kigogo-ini, gatumbiro, karaihu, kirurumi. The data from the respondents in the five sub-locations in Tetu will be collected through the use of structured and unstructured questionnaire. The data collected will be analyzed with SPSS to generate mean, mode and frequency. A regression model will be formed to determine whether marketing, cost of inputs, pests, diseases and predators, management skills, predict the returns of the small scale poultry sector. Among the expected results include that cost of inputs are prohibitive and lowers the returns of poultry production and the marketing system of the poultry products is inefficient.
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# LIST OF ABBREVIATIONS AND ACRONYMS

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<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
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<tbody>
<tr>
<td>CP</td>
<td>Crude Protein</td>
</tr>
<tr>
<td>F.P</td>
<td>Family Poultry</td>
</tr>
<tr>
<td>FAO</td>
<td>Food and Agriculture Organization</td>
</tr>
<tr>
<td>KARI</td>
<td>Kenya Agricultural Research Institute</td>
</tr>
<tr>
<td>KBBA</td>
<td>Kenya Broiler Breeders Association</td>
</tr>
<tr>
<td>KIPPRA'S</td>
<td>Kenya Institute of Public Policy Research and Analysis</td>
</tr>
<tr>
<td>LIFDCs</td>
<td>Income Food Deficiency Countries</td>
</tr>
<tr>
<td>MDGs</td>
<td>Millennium Development Goals</td>
</tr>
<tr>
<td>MOLD</td>
<td>Ministry of livestock development</td>
</tr>
<tr>
<td>MT</td>
<td>Metric Tonnes</td>
</tr>
<tr>
<td>NCD</td>
<td>New Castle Diseases</td>
</tr>
<tr>
<td>NPDP</td>
<td>National poultry development program</td>
</tr>
<tr>
<td>ROI</td>
<td>Return On Investment</td>
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</table>
Operational definition of key terms

'Return On Investment - ROI' - A performance measure used to evaluate the efficiency of an investment or to compare the efficiency of a number of different investments. To calculate ROI, the benefit (return) of an investment is divided by the cost of the investment; the result is expressed as a percentage or a ratio.

The return on investment formula:

\[
\text{ROI} = \frac{\text{Gain from Investment} - \text{Cost of Investment}}{\text{Cost of Investment}}
\]

In the above formula "gains from investment", refers to the proceeds obtained from selling the investment of interest.

A disease is an abnormal condition that affects the body of an organism. It is often construed as a medical condition associated with specific symptoms and signs. It may be caused by factors originally from an external source, such as infectious disease, or it may be caused by internal dysfunctions,

free range - Supposed to mean that poultry is allowed to roam without being confined and is fed on naturally grown crops, consuming only a vegetarian diet.

Poultry is a category of domesticated birds kept by humans for the purpose of collecting their eggs, or killing for their meat or feathers.

Family poultry is defined as small-scale poultry keeping by households using family labour and, wherever possible, locally available feed resources. The poultry may range freely in the household compound and find much of their own food, getting supplementary amounts from the householder
CHAPTER ONE

1.0 INTRODUCTION

1.1 Background to the Study

Small scale farming is a way of life in Africa full of challenges and equally full of huge opportunities, (Xinhua, 1999). Poultry, particularly chickens are the most widely kept livestock species in the world and also the most numerous (Moreki, 2010). In the past, poultry farming involved raising chickens in the back yard for daily egg production and family consumption. However, Poultry industry has made a rapid progress in the last few decades and poultry meat has become the fastest growing component of the global meat. For instance, the indigenous poultry industry in Kenya has seen tremendous growth due to the high demand for their products, especially in townships. The increase in demand has been attributed to an increase in prices of red meat as well as health consciousness among meat lovers. Meat and eggs are considered complete proteins because they contain all of the essential amino acids needed for humans as well as important fats, minerals and vitamins. Poultry farming today is a huge business that is split into several operations including hatcheries, pullet farms for meat production, or farms for egg production. According Farran (2009), poultry farms are fast-paced operations that can fulfill the demands for meat and eggs, and can be expanded easily to meet the ever-growing demand.

Among the largest producers of poultry product in the world include India which is rated second in world. For instance, in 2005 the total egg production in India in 2005 was 46 billion (Panda, 2010). In the developing world, Ethiopia has about 42 million chickens of which 96.6% are local chicken (Gueye, 2010). According to Saha, (2005) poultry rearing has been
an integral part of many households in rural areas. Mannon, (2006) further explains that poultry keeping is one of the tools available for an integrated rural development and for bringing about socio-economic transformation of small entrepreneurs. Village based chicken production requires less space and investment and can play an important role in improving the livelihood of the poor village rural family (Samson & Endaleco, 2010). In Kenya, indigenous poultry are the most popular and common farm species. According to the Kenya Poultry Farmers Association (KEPOFA, 2009), the poultry population stands at 32 million, of which 6 million are commercial hybrids and the rest, 70% are indigenous birds. They contribute significantly to the socio-economic and nutritional needs of an estimated 21 million people (75%), living in rural areas of Kenya. These birds are mostly kept for domestic consumption and sale. The numbers kept vary with location but are largely reared under the free range system which is estimated to be more profitable than keeping indigenous poultry under confinement (Menge, 2007). However, these birds need extra feed to supplement that obtained from their scavenging activity (Muiruri and Wachira, 2007).

Usually, these flocks are small and external inputs few (Udo, 2006). Sorensen, (2007) puts the flock sizes in Makueni at between 20-30, while for Western province they are estimated as between 7-10 birds (Muriuki, 2002). Okitoi, (2006) put this figure at 10-20 birds. The national average figure is 13 birds per household (Nyaga, 2007). The free range chicken production represents an important system for supplying the fast growing human population with high quality protein and providing additional income to resource-poor small farmers, especially women (Guèye, 2009). Indigenous chickens farming in Kenya is widely distributed in rural and peri-urban areas where they play the important role of income generation and food production (Moreki, 2010). Family poultry (or the ‘traditional scavenging’ system), which is based almost
entirely on native birds, has been by-passed by the poultry revolution, with virtually all the
growth occurring in the large-scale sub-sector. Most household in the rural area practice local
poultry rearing which are left in the open field to scavenge for food. The production level of
scavenging hens is generally low, with only 40-60 small sized eggs produced per bird per year
under small holder management conditions (Abera and Tegene 2011).

However, many factors have affected the efficiency of poultry production either directly or
indirectly. Roberts and Gunaratne, (2004) have attributed much of the low performance of the
birds to the poor feed resource base. According to Ashenafi, (2004) lack of disease control and
prevention skills, lack of knowledge about poultry production, limitation of feed resources, as
well as institutional and social-economic constraints remains to be the major challenges in
village poultry whether traditional or modern. According to Tedelle and Ogle, (2001) the
primary problem cited by village poultry farmers is high mortality of chicks. The major cause
of this problem as perceived by most communities in their order of importance were diseases
63.8%, predation 21.8%, poor feed 9.5%, as per the reports of Tedelle (2003).

According to Annon, (2002), the small scale poultry sector has continued to be constrained by
various other challenges such as infrastructure, low productivity of indigenous chicken (low
quality breeding stock and loss of genetic diversity), fluctuations in demand and supply levels
of chicken products, poor access to credit facilities, lack of business. These can interact in
multiple ways to influence the ultimate productivity level. According to Kenya poultry farmers
association growth has stagnated over the past 5 years mostly due to lack of incentives. According to Kenya Economic survey, 2010, the industry has seen slow growth over the years in both the indigenous and exotic sectors. According to Kenya poultry farmers association (2010), there has been low performance of the small scale poultry sector in Tetu
location and this has prevented the attainment of better living standards and alleviation of poverty in the rural areas.

1.2 Statement of the Problem

Small scale poultry farming in developing countries have not prospered as expected given its potential. In India, traditional poultry-keeping appears to be a stagnant low-productivity sub-sector. The percentage of native birds in the total poultry population has dropped from 50% about 30 years ago to about 10% in 2009 (Rangnekar and Rangnekar, 1999). In Kenyan, the situation is not different. The poultry industry is likely to report a 30% drop in production (Kariuki, 2010). According to economic survey 2010, production was highest in 2008 when it was 24000MT, compared with 23000MT in 2009. Meanwhile, egg production rose to 89000mt in 2008, falling to 81000MT in 2009.

According to Gueye (2005), the indigenous chickens have some advantages such as the special meat and egg quality/flavour and therefore they fetch better prices than exotics. These traits are ideal especially to small scale farmers since they cannot afford to purchase expensive feeds and incubators, which are considered necessary for raising exotic breeds (Abera, 2000 and Amsalu, 2007). Despite these advantages, there has been an increasing tendency by poultry farmers in Tetu to abandon poultry farming. The high turn-over of poultry farmers to other sectors of businesses is a clear indication that there are prohibiting factors that discourage the poultry farmers from rearing poultry. The turn-over has to a great extent affected the returns on investment in the sector. The main indicators of the existing problem is that poultry farmers are quitting poultry farming in favour of dairy farming, crop farming, bee keeping, charcoal selling and other businesses. This in turn affects returns on investment in poultry.
According to the Tetu local branch of Poultry Farmers Association, 2009, the prices of eggs and live chicken have risen from Ksh 5 to Ksh 15 and from Ksh 350 to Ksh 800 respectively which is an indication of declining supply of chicken and eggs. This kind of trend demonstrates that there could be an aspect in the rearing of poultry which demoralizes the poultry farmers in Tetu. This is a problem worthy addressing because one would wonder why farmers are shying away from poultry rearing yet the demand for poultry egg and meat is on the increase (FAO, 2002). It is with this view that the researcher sets out to undertake a study to investigate a few challenges that affect the returns on investment on the small scale poultry in Tetu location.

1.3 Research objectives

1.3.1 General objective

The purpose of the study was to investigate the challenges that affect the returns on the poultry sector in Tetu Location in Nyeri County.

1.3.2. Specific Objectives of the Study were:

(i) To examine the effects of marketing on the returns on investment in the small scale poultry sector, in Tetu location.

(ii) To determine the effects of the costs of inputs on returns on investment in the small scale poultry sector, in Tetu location.

(iii) To investigate whether disease, pests, and predators have any negative influence on the returns on investment in the small scale poultry sector, in Tetu location.

(iv) To examine the effect of management skills of the poultry farmers on the returns on
Investment, in the small scale poultry sector, in Tetu location.

1.4 Research Questions

(i) How does marketing affect the returns on investment in the small scale poultry sector in Tetu location?

(ii) What is the effect of the costs of inputs on the returns on investment in the small scale poultry sector in Tetu location?

(iii) How have the diseases, pests and predators contributed to the returns on investment in the small scale poultry sector in Tetu location?

(iv) What effect have the management of poultry by farmers affected the returns on the small scale poultry sector.

1.5 Scope of the Study

The area of the study was Tetu Location in Nyeri County. The target population consisted of 812 poultry farmers in Tetu Location, according to the Kenya Poultry Farmers Association reports, 2009. The location is sub-divided into five sub-location namely; Gatumbiro, Ichagachiru, Karaihu, Kirurumi, and Kigogo-ini sub-location. The research study focused on the small-scale poultry farmers who were the subjects within Tetu Location in Nyeri County. The researcher randomly selected a sample size of 81 poultry farmers from the location.

The location was ideal for the study because the activities and operations of small scale poultry sector are similar to a large extent to other areas in the country. Therefore the results that were
obtained from Tetu location could be generalized across board to represent other poultry farming in the country. Tetu was also easily accessible from where the researcher was based and small scale poultry rearing was a popular activity among the residents.

1.6 Significance of the Study.

The study on the challenges affecting the returns on investment in the small scale poultry sector will be expected to benefit various stakeholders. The result of the research will guide policy makers and poultry farmers in designing and implementing appropriate strategies required to improve the poultry industry. The poultry farmers will be able to use the results and recommendations from this study in their poultry rearing especially in the coping with the challenges impacting negatively on the returns of the small scale poultry sector. Further, policy makers will be in a position to know the challenges facing the poultry sector and this may bring insight into appropriate policies that may assist in increasing the returns on poultry. The study will also be useful for those intending to undertake a similar study as a reference. The findings will add to the pool of knowledge on challenges facing poultry farming and perhaps recommend areas for further studies.

1.7 Limitation of the Study.

The researcher was unable to reach out some respondents in inaccessible areas due to rough, muddy roads and steep terrain. Tetu Location is an expanse area to study. It was therefore not be possible to cover the opinions of some farmers and other stakeholders because tracking them required considerable time, resources and other logistics. The researcher was assisted by the research assistants to reach them. The researcher also observed the weather situation so as to go to the field when the roads were passable.
There was also very little literature on small scale poultry farming in Kenya and Tetu, particularly on poultry. The researcher sought additional literature from other similar developing countries. The respondents were not willing to give data on areas they considered sensitive. However, the researcher had to use convincing language in an oral interview, to create a good rapport in order to dispel fear from the respondents, and win their trust. Some respondents being farmers and uneducated, could not comprehend the questions in the questionnaire and were unable to fill them. The researcher and the research assistants gave the necessary assistance to the respondents in reading and understand questions and to fill questionnaires.

1.8 Assumptions of the study

The researcher expected the respondents to accurately and honestly give the correct and the needed information when filling in the questionnaires. All the respondents were expected to be co-operative and to provide reliable responses. The researcher expected that all the poultry farmers were aware of the challenges experienced in poultry farming.
CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

This chapter reviews the literature related to the study. The researcher will get this information mainly from the secondary sources especially the textbooks, library research, newspaper articles and the relevant websites. Some of the information will be obtained from primary sources through observation and discussion with friends. The literature shall be reviewed in order to identify opinions, findings and information from various studies and people on the various factors that have led to low returns on the small scale poultry sector.

2.1 Poultry farming status.

2.1.1 Poultry farming globally.

Small scale poultry farming refers to the raising of domesticated birds such as chicken, guinea fowl, ducks, turkey, pigeons, geese for the purpose of household incomes and consumption of animal protein (Aboe, 2006). The World poultry population has been estimated to be about 16.2 billion, with 71.6% in developing countries. Over 67,718,544 metric tons of chicken meat and 57,861,747 metric tons of hen eggs are produced annually (Gueye, 2005). The past two decades have seen a complete transformation in the poultry industry. Poultry production across the world has increased by over 300%. China, has seen an increase in poultry production of almost 900% since 1980.

Indonesia, Thailand and Vietnam have seen increases of approximately 700%, 300% and 400%, respectively (FAO, 2008). Chickens, geese, and ducks are of greatest worldwide in
commercial importance. In the United States and Canada, turkeys are second to chickens in importance. Turkeys are not raised on a large scale in other countries. Ornamental birds such as swans and peacocks, and birds raised for exhibition or for cockfighting, are sometimes called poultry. According to Gueye, 2005, the United States is a world leader in poultry production. Its poultry industry is highly specialized, and is largely concentrated in mechanized commercial farms each having 10,000 to 100,000 birds or more. Poultry and poultry products, including chicken eggs, account for roughly 9 per cent of cash receipts from farm marketing in the United States.

2.1.2 Poultry farming in Africa

In Africa, village poultry contributes over 70% of poultry products and 20% of animal protein intake (Kitalyi, 2004). It has been estimated that 80% of the poultry population in Africa is found in traditional scavenging systems (Gueye 2000). Women and children are generally in charge of poultry husbandry (Anon, 2002). The birds scavenge in the vicinity of the homestead and may be given supplementary feed. A free ranging production system is characterized by low outputs of eggs and meat production per bird (Olwande, 2009), but has low capital input and hence low economic risks (Gichohi and Maina, 2008). Scavenging hens lay 30 eggs per year, while industrialised battery hens lay up to 300 eggs annually. It may take up to 12 months to raise a chicken for consumption. The scavenging production systems are entitled ‘low input-low output’ systems (Pandey, 2005).

A range of factors such as sub-optimal management, lack of supplementary feed, low genetic potential and diseases causes the low output (Permin and Bisgaard, 2004). Despite the low production, scavenging chickens still accounts for a major part of all meat produced in many developing countries (Mlodzi and Minga, 2003). There are three poultry management systems in
Africa namely; intensive, semi-intensive and extensive/scavenging, which are differentiated on the basis of flock sizes and input-output relationships (Kitalyi, 2004). In the extensive or scavenging management system, different poultry species are kept. These include chickens, guinea fowls, ducks, geese and turkeys. Chickens dominate in number and economic contribution (Fanuel, 2008). Guinea fowls may be more popular in the flocks of West Africa, coming second to chickens (Veluw, 2004). Flock sizes in this production system are highly variable. Sonaiya (2005) give a range of 3 to 97 while Kitalyi (2004) reported a wider range of 6–130. Bigger flock sizes are associated with more intensification in housing, feeding, disease control and marketing. The traditional poultry housing structures are normally small in size. According to kitalyi, (2004), the birds do not have separate houses and instead the birds roost in the family house, kitchen or in tree branches. The intensive system, which is based on specialized breeds, constitutes less than 30% of the total poultry population in Africa (Tadelle, 2010). The semi-intensive production system which is sometimes referred to as backyard production system involves a hybrid of extensive and intensive system (Ngongi, 2009).

Both the intensive and semi-intensive production systems are based on one species and mostly the domestic chicken (Gallus domesticus). Flock sizes in intensive production system are normally in thousands, whereas the semi-intensive or backyard production system flocks range from 50 to 200 birds (Kitalyi, 1998). Producers in these production systems, aim at using the recommended standard practices, such as breed of choice depending on production objectives, appropriate housing, feeding and health and disease control program.

2.1.3 Poultry farming Kenya, in East Africa

In East Africa, over 80% of human population live in rural areas and over 75% of these households keep indigenous chickens (Kitalyi, 2004). According to Gichohi and Maina,
(2009), the production performance of indigenous (local scavenging) chickens of Kenya is low because of their low egg production potential, high chick mortality and longer reproductive cycle or the low genetic potential (slow growth rate, late sexual maturity and broodiness for an extended period). Besbes, (2009) observes that 40-60% of the chicks hatched die during the first 8 weeks of age mainly due to disease and predators attack while half of the eggs produced have to be hatched to replace chicken that have died. Further, the brooding time of the laying hens is longer, with many brooding cycles required to compensate for its unsuccessful brooding (Besbes, 2009). According to Alemu and Tadelle, (2010), the reproductive cycle of indigenous hens under scavenging conditions consists of 20-days of lying phase, 21-days of incubation phase and 56-days of brooding phase. According to Gueye (2005), though indigenous chickens have low productivity they have some advantages such as the special meat and egg quality/flavour and therefore they fetch better prices than exotics.

These traits are ideal especially to small scale farmers since they cannot afford to purchase expensive feeds and incubators, which are considered necessary for raising exotic breeds (Abera, 2000 and Amsalu, 2007). Most farmers in Tetu prefer to keep a small number of birds by making use of intensive and semi-intensive mechanisms for poultry production. Indigenous chicken rearing is the most widespread under the scavenging system. Flock sizes are small of 2 to 7 birds. Chick mortality rate is quite high. The sector, faces a number of problems related to disease control, high prices of inputs, marketing issues among others.
2.2. Theories in poultry farming

2.2.1 Contingency Theory

Contingency theory has been widely used on measuring the performance and effectiveness of an organization and it claims that there is no optimum method to systematize a firm and the organization structure of the company (Fiedler, 2000). In other words, contingency theory argues that the most appropriate structure for an organization is the one that best fits a given operating contingency, such as technology or environment (Lawrence & Lorsch, 2001). As a business faces its own set of internal and external constraints as well as special environmental incidents that affect its distinctive levels of environmental uncertainties, there is no one optimal organization design for every company because every company has different organizational culture and different perspective towards risk. As such based on contingency theory this study takes into account the unique circumstances of poultry farming sector to come up with challenges that affect its performance. Lack of market information, poor management skills, diseases and cost of input are major challenges identified within the literatures as the causes of poor performance in the sector.

2.2.2 Theory of Origin of Domestic Chicken

There are two theories regarding the origin of chicken. The Monophyletic and Polyphyletic theory. Monophyletic theory is based on the observation Darwin, (1896), who gave a detailed consideration that the red jungle fowl (Gallus gallus) is the only ancestor of domestic fowl. Darwin’s observed that, fertility rate is high in case of Red jungle fowl. The Red jungle fowl Roost in the trees and has Flying characteristics like domestic fowl. Plumage color of the
domestic fowl is very strong like Red jungle fowl & also Plumage pattern. Female Red jungle fowl plumage pattern is similar to female white Leghorn.

The polyphyletic theory attributes the origin of domestic fowl to different wild fowl species including Gallus gallus. According to Hirstk.k, 1974, chicken were first domesticated from a wild form called red junglefowl (Gallus gallus), a bird that still runs wild in most of southeast Asia. It is likely that it was hybridized with the grey junglefowl (G. sonneratii). This occurred probably about 8,000 years ago. Recent research suggests that there may have been multiple origins in distinct areas of South and Southeast Asia, including North and South China, Thailand, Burma and India. According to Hirstk.k. 1974, comparisons of behavior and other changes that exist are available. Behaviorally, domesticated chickens are less active, have fewer social interactions, are less aggressive to would be predators, and are less likely to go looking for foreign food sources than their wild ancestors. Other changes include increased adult body weight and simplified plumage; egg production starts earlier, is more frequent, and produces larger eggs. Genetic studies suggest multiple origins of domestication. The first archaeological evidence to date is from China about 5400 BC, in geographically widespread sites such as Cishan (Heibei province, ca 5300 BC), Beixin (Shandong province, ca 5000 BC), and Xian (Shaanxi province, ca 4300 BC). Domesticated chickens appear at Mohenjo-Daro in the Indus Valley by about 2000 BC and, from there the chicken spread into Europe and Africa. The earliest firm evidence for chickens in east Africa are illustrations from several sites in New Kingdom Egypt. Chickens arrived in western African at Iron Age sites such as Jenne-Jeno in Mali, Kirikongo in Burkina Faso and Daboya in Ghana by the mid-first millennium AD.
2.3 Empirical literature.

Safaloah, 2005, conducted a study to characterise existing rural smallholder poultry marketing systems in four villages of Malingunde Extension Planning Area (EPA) in Lilongwe West Rural Development Project (RDP) in Malawi. 147 households were selected through a two-stage cluster sampling procedure from Ishmael, Mankhanga, Sinyala and Kalonga II villages. A survey was done to determine market players, marketing channels, household selling decisions and marketing margins. The major constraints in rural chicken marketing in order of priority were identified as low prices, low marketable output, and long distances to reliable markets. Farmers' decision to sell chickens was significantly affected by the source of chickens sold and the number of chickens lost. The study also showed that there are three main frequently used chicken marketing channels as follows; direct producer to consumer selling (PC channel); rural assembler selling to retailers for final selling to consumers (RA-R channel) and assembler-retailer (AR channel) where assembly and retailing functions were integrated. It was recommended that chicken and egg marketing of rural chicken farmers can be improved through formation of marketing groups and training of farmers in enterprise development.

A study was also conducted to assess the status and constraints of village poultry production in Metema district, north-western Ethiopia, using questionnaire survey on 75 households and field observation. The information obtained from the questionnaire survey revealed that 84% of the respondents rear at least one bird for family consumption and for generating income. Most of the respondents indicated that the average egg per single laying period was 15 eggs and after that the bird becomes broody during the rest of the times. The average age at maturity for egg laying or for household meat consumption was also greater than three months in more than 90% of the respondents. Guinea fowl was also reared by some of the respondents. All
respondents have indicated high mortality rates during months of February, March, April and May. A diarrhoeic disease and Predators were indicated as significant causes of loss of poultry. Lack of improved breeds, low level of housing and feeding, management as well as absence of well equipped veterinary service were understood as the most important constraints hampering poultry production in the area. Therefore, integrated approach has to be considered to enhance the contribution of poultry in food security. G.A Teye, (2000) conducted a study in the Damongo area to identify major constraints to Guinea fowl production. The survey involved 35 farmers chosen randomly from Damongo and four other villages within 5 km radius of Damongo. The findings from all the farmers indicated that high keet mortality, difficulty in sexing, and absence of a source of quality day-old keets were the main constraints. The other problems identified were lack of information about nutrient requirements of the local Guinea fowl, loss of birds and eggs through picking by predators, worm infestation and taming of birds. The findings were that there is a high potential for Guinea fowl production in Ghana and the prospects are bright. It was recommended that, there was an urgent need to solve, the most important problems such as feeding, sexing, and keet mortality confronting the industry.

2.3.1 Effects of marketing of poultry products on the returns of poultry.

The marketing system for indigenous birds and products in Kenya can be described as unorganized, weak and undefined (Wachira, 2009). This maybe attributed to the low and irregular chicken productivity (Mbugua, 2008). As such live birds and eggs are sold during the time of need for cash or when the birds are sick (Nwosu, 2005 ). Eggs are also sold when hatching is not required. Local traders purchase live chicken and eggs from farmers and transport them for sale to urban markets (Nyaga, 2007). Eggs are also sold within households
or through the local shop outlets. Live birds are sold when aged six months and over (Olaboro, 2001).

In Uganda, most farmers do not have access to market conditions before embarking on production (Alum 2007). This partly explains why production is still low despite the existence of unmet demand for poultry meat which is estimated to be 12.4 kg per adult equivalent in the urban areas (Kariuki, 2005). Most of the small-scale commercial poultry farmers sell live birds at the farm gate or to households and caterers (Aning, 2008). There is lack of distribution chains and channels between the wholesale agents and the small-scale farmers where poultry can be transferred from the poultry farms to the marketing shops /stores to be sold to consumers. Indigenous chicken prices according to Munyasi, (2009) vary by season, chicken sex, size and trader. Further, most of the farmers make the decision to sell due to the need to off-load in anticipation of disease outbreaks and to earn some income to cater for household requirements (Wollny and Kaumbata, 2005). Nyange, (2005) argues that complain of low profits by indigenous chicken farmers is due to exploitation by middlemen. The prices offered to indigenous chicken in Coastal region in Kenya are 18% of the terminal price in coastal Kenya while in other countries farmers appear to receive fairly higher returns (Minga, 2005).

2.3.2 Effects of high Cost of Inputs on the Returns on investment of small scale Poultry.

Faced with inadequate government support, and difficulties in receiving loans, small scale poultry farmers are struggling with very high production costs, particularly for feed. (Christian Aid, 2005). Over the last year the cost of production in poultry sector has been increasing as a result of increase in energy prices (Aning, 2008). The biggest challenge facing the industry is the high cost of inputs (Akunzule, 2006). Issah, (2007) observes that, between 2003 and 2004, the prices of feeds went up and several farmers abandoned the rearing of poultry. According to
the Nyanza provincial diary officer, katonga, 2011, a 20kg bag of growers and layers mash was retailing between 490 and 570sh while the cost was 350sh three years ago.

The animal health representative in central Kenya region, Wainaina, (2009) reported that the rising inflation has affected the sector, hence pushing the national cost of production to Ksh 4.3 billion up from Ksh 1.2 billion in past three years. According to the Economic survey (2010), the country is unable to cope with global trends where poultry production is the fastest growing meat sector. The main cost factors affecting the small-scale poultry farmers include day-old chicks (DOC), feeds, drugs, vaccines, housing and labour (Aning, 2006).

2.3.3 Diseases, Pests and Predators and their effects on the returns of the poultry sector.

The most striking problem in relation to village poultry production is the high mortality. Mortality rates may be as high as 80–90% within the first year after hatching (Matthewman, 2004). Traditionally, Newcastle disease (NCD) is believed to be the most devastating disease in free-range systems and the main course of the high mortality (Katule, 2003). Other diseases such as Fowl Typhoid, Avian Leucosis may also cause high mortality rates in the absence of NCD (Barman, 2002). The pests like fleas and worms are also dangerous to poultry. Though the disease is controllable through Vaccination few farmers vaccinate their indigenous chicken. The vaccines are available at District and Divisional veterinary offices and from local chemists (Ondwassy, 2006). Pest (fleas, lice and mites) infestation sometimes causes death in chicks (Akinokun, O, 2007). These pests can be controlled by maintaining good sanitation in the house and regular dusting with insecticides.

Since the traditional poultry housing structures are small in size it is difficult for person to go into most of them. Such houses would definitely not provide a healthy environment. The poor
hygienic condition of the housing result in high infestation with external parasites. Due to lack of knowledge on control and prevention of pest and diseases most of the small scale poultry farmers live close to survival limit Ondwassy, (2006). As such most farmers are reluctant to invest in poultry production due to the risk of disease outbreaks and mortality. Disease and pest risks are therefore recognized as a major constraint in smallholder poultry production Ondwassy, (2006) Apart from diseases, the other most important cause of mortality between two and four months old chicken is predation by dogs, cats, hawks and snakes which causes up to 70% mortality, (Bourcat and Saunders, 2000). This is attributed to the fact that small scale poultry farmers have inadequate resources to make good housing for the poultry. This results in predators preying on the poultry. Better housing is therefore an important way to reduce this loss and can utilize locally available materials of reasonable cost. The predators can also be trapped, hunted or repelled by specific plants (Brankaert, 2000).

2.3.4 Management skills of the poultry farmers and the effects on the returns on poultry sector.

According to Gichira and Nelson (2007), the major constraints to expanding the small enterprise sector in Kenya appear to be lack of capital, infrastructure, and managerial skills. As Motts (2000) suggests, entrepreneurship requires prior employment or business experience and expertise. Lack of experience and expertise, among other factors, tend to push potential small scale entrepreneurs into high risk and low-value where failure is highly probable (Chigunta, 2001). The technical skills for the poultry farmers are lacking. Hence, Bessei (2010), emphasized that technical skills need to be considered at both farmer and extensive officer levels. An in–depth knowledge, skills, and strategies on the part of the poultry farmers to solve practical problems in the areas of disease control, housing, equipment, feeding, genetic
improvements and marketing of poultry products are essential for successful poultry keeping (Sonaiya and Swan, 2004).

Poor understanding of disease epidemiology, poor infrastructure, and inadequate diagnostic facilities have compounded the problem in extensive production system. Manda, (2006) argue that getting access to different sources of information influence knowledge, attitudes, and perception of individuals’ towards any farming system. The communication and information flow dimension of the agricultural activities have accelerated the diffusion and adoption of technologies, good methods and practices (Chisenga, 2007). Therefore, the small-scale poultry farmers must be encouraged to rely on Radios, Televisions, Newspaper Mobile Phones, Internet, Veterinary Doctors, and Farmers associations to gain access to local and international market information. (Chisenga, 2007).

2.4 Research Gap

In spite of the advantages of the indigenous chickens, little have been done in terms of research especially on performance potential, and development efforts since rearing them has been considered as a sideline agricultural activity. Most studies done by other researchers have been on types of marketing systems and the constraints in the marketing systems, such as the one done by Safaloah, 2005 in Mutema, Ethiopia. The recommendations were that farmers should form marketing groups for efficient marketing of chicken and egg. The researcher will study marketing as a constraint to returns of poultry in the small scale operation within Tetu location. G.A. Teye, 2000, studied the constraint to Guinea Fowl production in Ghana and recommended an urgent need to solve, the most important problems such as mortality. The researcher will dwell on constraints in the poultry sector and their effect on the returns of the poultry sector and will not target, only the constraints of Guinea fowl. The researcher will try
to understand how the constraints determine the returns of the small scale poultry sector within Tetu location.

However, most researchers have researched on problems facing poultry farming in Ghana, Ethiopia, Botswana, South Africa and the Asian countries like Pakistan, India and China. The studies have also dwelt on methods of poultry farming and its benefit to the farmers especially commercial farmers. Many researchers have attempted to examine the main poultry production systems world-wide classified as; backyard (village) scavenging systems, small-scale commercial systems, and large-scale commercial farms with modern technology (Reddy 1991b).

There has been relatively little research on village chickens, regarding both constraints and technological improvements that could be affordable to the resource-poor. Instead, research has focused on intensive production systems. What limited research there has been on scavenging poultry has focused primarily on ‘improved’ breeds, (Devegowda (eds), 2002). However, there are no studies on the challenges affecting the returns of the poultry for the indigenous poultry. Hence, the subject of this study is to investigate the constraints that have led to low returns in the poultry sector within Tetu location.
2.5 Operationalized Conceptual Framework.

INDEPENDENT VARIABLE DEPENDENT VARIABLE

MARKETING
- Knowledge of markets
- Distribution channels
- Access to markets

COST OF INPUTS
- Cost of Feeds
- Cost of Chicks
- Cost of diseases
  Management and control

DISEASES
- Types of diseases, pests, predators.
- Disease control and prevention knowledge
- Type of housing (for hygienic purposes)

MANAGEMENT SKILLS
- Type of poultry management skills.
- Knowledge on poultry management

RETURNS ON INVESTMENT
- Profitability
- Production (eggs,)

INTERVENING VARIABLE
- Climatic factor
- Government intervention
Marketing refers to the various ways through which the poultry farmers sell their chicken and eggs. That is whether through local traders, local shops, or within the neighbour holds. It also refers to access to information on market conditions, and distribution chains. The high cost, refers to the costs of feeds, cost of young chicks, costs of rearing chicken, costs of diseases control and managerial costs. The high cost poses challenges to poultry farmers and may lower the returns on investment on poultry.

Diseases, Pests and Predators refer to the types of diseases, pests and predators that cause high mortality to chicken. It also addresses their control and prevention knowledge, the unhygienic conditions that lead to diseases and pests due to poor housing facilities. Management skill refers to the technical skills, business experience and expertise that farmers possess or do not possess that affects the management of poultry and therefore affecting the returns on investment of poultry.
CHAPTER THREE

RESEARCH METHODOLOGY

3.0 Introduction

This chapter presents the research design, the target population, the sampling strategy, the methods that were used in data collection as well as the description of data analysis procedure.

3.1 The Research Design

The researcher adopted a descriptive survey design, which was deemed to be the most appropriate as it uses both qualitative and quantitative research methodologies within the same study. Kothari (2003) recommends descriptive survey design as it is used to obtain information concerning the current status of the phenomena and to describe what exists with respect to the variables or conditions in a situation. Jackson (1994) contends that all research is partly descriptive in nature in so far as the descriptive aspect defines and describes the research.

3.2 Target Population

The target population consisted of the small scale poultry farmers in Tetu location who reared between 20 and 50 birds. There were 812 registered poultry farmers in Tetu Location who reared between 20 and 50 birds according to the Tetu poultry farmers association, 2009. The farmers practiced a combination of extensive and semi-intensive poultry management system. Jaccard (1983) defines population as the aggregate of all cases to which one wishes to generalize.
3.3 Sampling procedure

The researcher used simple stratified sampling technique to draw a representative sample. The location was sub-divided into the five sub-location, which comprised the various strata to be under the study. The sub-locations were Catumbiro, Ichagachiru, Karaihu, Kirurumi, and kigogo-ini. A simple stratified sampling procedure was then used to pick individual respondent within each sub-location. Chandian (2003) defines a sample as a small proportion of an entire population, a selection from the population. Popham&Sirotnik (1973) contend that in order to draw legitimate inferences about populations from samples, then the sample has to be representative of the population.

3.4 Sample size

According to Mugenda and Mugenda (1999), a sample size of between 10% and 30% is appropriate for a descriptive study. The researcher therefore selected a sample size of 10% of the total population of the poultry farmers in the selected sub-locations. The accessible total number of poultry farmers was 812 in all the sub-locations. Thus, the desired sample sizes in each sub-location was estimated as 81 which will be 10% of the total target population, according to Mugenda&Mugenda, (1999) and as calculated in table 1 below.
Table 1: Sample size distribution

<table>
<thead>
<tr>
<th>Sub-locations</th>
<th>Population size</th>
<th>Sample size 10% population</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gatumbiro</td>
<td>93</td>
<td>9.3</td>
</tr>
<tr>
<td>Ichagachiru</td>
<td>112</td>
<td>11.2</td>
</tr>
<tr>
<td>Karaihu</td>
<td>183</td>
<td>18.3</td>
</tr>
<tr>
<td>Kirurumi</td>
<td>222</td>
<td>22.2</td>
</tr>
<tr>
<td>Kigogoini</td>
<td>202</td>
<td>20.2</td>
</tr>
<tr>
<td>Total</td>
<td>812</td>
<td>81.2</td>
</tr>
</tbody>
</table>

Source: Poultry Farmers Association, Tetu 2009

3.5 Data collection instruments

Primary data was collected with the aid of sets of structured and semi-structured questionnaires. Primary data was sourced from small scale commercial poultry farmers in Tetu location. The respondents were the operators of small-scale poultry farms having between 20 and 50 birds per farm. A total of 81 poultry farmers were sampled for the study. The questionnaires consisted of four sections. Section A focused on the General information about the farmer and effects of marketing on the small scale poultry. Section B captured data on the effects of cost of inputs on the small scale poultry. Section C and D was about Pests, diseases, predators and management skills of poultry farmers respectively. The sets of questionnaire
were personally administered to the small scale poultry farmers by the researcher with the help of the research assistants. Administration of questionnaires was done through drop and pick methods. The questionnaires were collected after five days. The Orodho (2009) point out that a questionnaire can be used to collect a huge amount of data in relatively shorter time. Further a questionnaire reduced biasness inherent in interviews leading to honest answers since no identification was needed and respondents gave answers without fear.

3.6 Validity

To ensure validity, the researcher sought the advice the expertise of the supervisor regarding the test items included in the questionnaire in order to establish their relevance in relation to the subject matter. This was to ensure that all objectives were adequately covered by the items in the instruments. Best and Khan (1989) observed that validity is the extent to which the instrument measures what it is supposed to measure. According to Borg and Gall (2003), validity is the degree to which the sample of test items represents the content that the content is designed to measure.

3.7 Reliability

Reliability is the extent to which results are consistent over time. According to Orodho (2009), reliability is concerned with the extent to which a measuring procedure produces similar results when repeated several times. In this study test-retest method was used to determine the reliability of the results. The questionnaires were given twice to the same group of people at an interval of two weeks. The reliability was the correlation between the scores obtained in the two instances. The Pearson’s correlation coefficient was used to obtain the correlation
coefficient and to determine the degree of consistencies of the questionnaire in prompting similar responses each time it is applied.

3.8 Data analysis and presentation.

Information obtained from questionnaires was coded and updated on a coding framework. Qualitative data was descriptively analyzed to show the extent to which the respondents responded to the statements in the questionnaires. The descriptive statistics was interpreted to give the relationship between the challenges facing the poultry sector and returns on investments. Quantitative data was analyzed using a computer statistical package (SPSS). Meanings were contextualized, interpreted and organized according to their sources. The findings were presented by use of frequency tables, pie charts and bar graphs. The researcher used a multiple regression model for the study. According to Mugenda and Mugenda (2003), regression analysis is a type of analysis used when a researcher is interested in finding out whether an independent variable predicts a given dependent variable. The researcher used multiple regression models to determine whether cost of inputs, marketing, management, pests, diseases and predators predict the performance of the poultry sector. The multiple regression model is

\[ Y = a + b_1x_1 + b_2x_2 + b_3x_3 + b_4x_4 + \ldots + e \]

where:

- \( a \) is the intercept or constant
- \( Y \) represents dependent variable, the returns on investment of the small scale poultry sector,
- \( b \) represents the values of the constant coefficient.
\( b_0 \) is the coefficient which represents the slope of the straight line the equation describes.

\( X_1 \): Represents the independent variable, marketing which is being tested whether it will predict the returns on investment of the poultry sector.

\( X_2 \): Cost of inputs which are independent variable and being tested whether it will predict returns on investment of the poultry sector.

\( X_3 \): Independent variable, pest, diseases, predators, which cause high mortality and being tested whether they'll predict the returns on investment of the small scale poultry sector poultry.

\( X_4 \): Independent variable management knowledge and whether it will affect the returns on investment on poultry sector.

Hence \( b_{1X1} \ldots \ldots b_{4X4} \) are regression coefficients or change induced in \( Y \) (returns on poultry) by each of \( X \) (i.e. cost of inputs, marketing, diseases, pests and predation and management skills).

\( e \) is error term. Since the researcher cannot control or account for all the myriad things that affect returns on investment of poultry in the small scale sector, the researcher will summarize them in \( e \) and take \( e \) to be a random variable whose value on any particular occasion is determined simply by chance; it is the operation of this \( e \) that causes actual observations to diverge from the straight line.

### 3.9 Ethical Considerations

According to Strydom (2002), obtaining informed consent implies that all possible information regarding the aim of the investigation, the procedure to be followed during the investigation, the possible advantages, disadvantages and dangers to which participants may be exposed should be put to the potential participants in the research. Informed consent is also required in ensuring the confidentiality of identity (Kvale, 1996). This researcher obtained informed consent...
consent from participants. The principals were also be informed that the information provided was be used for academic purposes only.
CHAPTER FOUR

4.0 DATA ANALYSIS AND PRESENTATIONS.

4.1 INTRODUCTION

In this chapter, the results and findings from the conducted study in Tetu location, are presented and discussed. The general objective was to investigate the challenges facing the returns on investment of the small scale poultry sector in Tetu location. The specific objective that guided the study were: To examine the effect of marketing on the returns on investment in the small scale sector; To determine the effect of cost of inputs on the returns on investment in the small scale sector; To investigate whether disease, pests, and predators have any negative influence on the returns on investment in the small scale poultry sector; To examine the effect of management skills of the poultry farmers on the returns on investment in the small scale poultry sector.

This chapter presents and analysis data collected using descriptive statistics. The questionnaire was the main method of data collection used. The data is interpreted in relation to the research questions and the results presented using tables, graphs and charts.

4.2 ANALYSIS OF RESPONSE RATE AND BACKGROUND INFORMATION

The study was carried out on the operators of small scale poultry farms who rear between 20 and 50 birds in Tetu location. Out of 81 questionnaires administered to the respondents 76 were completed and returned, giving a response rate of 93.8%. Table 4.1 below summarizes the response rates.
4.2.1: Response rate

TABLE 4.1 ANALYSES OF RESPONSE RATES

<table>
<thead>
<tr>
<th>Sub-location</th>
<th>Sample size</th>
<th>Number of respondents</th>
<th>Percentages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gatumbiro</td>
<td>9.3</td>
<td>9</td>
<td>11.84</td>
</tr>
<tr>
<td>Ichagachiru</td>
<td>11.2</td>
<td>11</td>
<td>14.46</td>
</tr>
<tr>
<td>Karaihu</td>
<td>18.3</td>
<td>16</td>
<td>21.05</td>
</tr>
<tr>
<td>Kirurumi</td>
<td>22.2</td>
<td>20</td>
<td>26.3</td>
</tr>
<tr>
<td>Kigogo-ini</td>
<td>20.0</td>
<td>20</td>
<td>26.3</td>
</tr>
<tr>
<td>Total</td>
<td>81.0</td>
<td>76</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Source: Researcher 2013

A total of 76 small-scale poultry farmers responded by filling in data collection questionnaires. The respondents were classified as small-scale poultry farmers in their various sub-locations as shown in table 4.1. All the targeted respondents from Kigogo-ini, Gatumbiro and Ichagachiru responded to the questionnaires because the researcher could easily access them. The respondents from Karaihu and Kirurumi were not easily accessible, and therefore not all were able to respond. 16 out of 18 in Karaihu and 20 out of 22 from Kirurumi responded to the questionnaires. However, the researcher was able to gather enough information from the 93.8% who responded to the questionnaire.
In order to understand the challenges facing the returns on investment in the small-scale poultry sector, the researcher sought the following information: effects of marketing, cost of inputs, diseases, pests and predators and management skills of farmers on the returns on investment in the small-scale poultry sector.

Analysis of background information

4.2.2 GENDER ANALYSIS

Table 4.2

<table>
<thead>
<tr>
<th>Gender</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Males</td>
<td>17</td>
<td>22.4</td>
</tr>
<tr>
<td>Females</td>
<td>59</td>
<td>77.6</td>
</tr>
<tr>
<td>Total</td>
<td>76</td>
<td>100</td>
</tr>
</tbody>
</table>

Source: researcher 2013
The study shows that the small-scale poultry sector is more of a female dominated activity. The males comprised 22.4% of the total sample of the population sampled for the study while the female accounted to 77.6%. It was taken as normality where even the society considers small-scale poultry rearing as a sideline-activity for women and their children.

4.2.3 AGE-GROUPS OF POULTRY FARMERS

TABLE 4.3

<table>
<thead>
<tr>
<th>Age in years</th>
<th>Frequencies</th>
<th>Percentages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Below 30</td>
<td>13</td>
<td>17.1</td>
</tr>
<tr>
<td>30 and 40</td>
<td>27</td>
<td>35.5</td>
</tr>
<tr>
<td>Above 40</td>
<td>36</td>
<td>47.4</td>
</tr>
<tr>
<td>Total</td>
<td>76</td>
<td>100.0</td>
</tr>
</tbody>
</table>
The majorities of small scale poultry farmers are in the age bracket of above 40 years with 47.4% and followed closely by the age bracket of between 30 to 40 years with 35.5% poultry farmers. The age bracket with fewest small-scale poultry farmers is below 30 years. This could be attributed to the fact that majority those below 30 years are still young and probably not settled in their places of residence or they could still be in colleges and schools. Also very few in this age group are in the rural areas.
### 4.2.4 Education Background of poultry farmers.

**Table 4.4**

<table>
<thead>
<tr>
<th>Education level</th>
<th>Frequency</th>
<th>Percentages</th>
<th>Angles</th>
</tr>
</thead>
<tbody>
<tr>
<td>KCPE</td>
<td>22</td>
<td>28.9</td>
<td>104.04</td>
</tr>
<tr>
<td>KCSE</td>
<td>26</td>
<td>34.3</td>
<td>123.48</td>
</tr>
<tr>
<td>CERTIFICATE</td>
<td>17</td>
<td>22.4</td>
<td>80.64</td>
</tr>
<tr>
<td>DIPLOMA</td>
<td>6</td>
<td>7.9</td>
<td>28.44</td>
</tr>
<tr>
<td>DEGREE</td>
<td>2</td>
<td>2.6</td>
<td>9.36</td>
</tr>
<tr>
<td>OTHERS</td>
<td>3</td>
<td>3.9</td>
<td>14.04</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>76</strong></td>
<td><strong>100.0</strong></td>
<td><strong>360</strong></td>
</tr>
</tbody>
</table>

Source: researcher 20
Majority of the respondents who account to 34.2% had attained secondary education, 28.9%, stated that they had only attained primary level of education, while 17%, 6%, 2%, and 3% had attained certificate, diploma, degree, and other education respectively. This shows that people of lower level of education are more likely to engage in the informal employment like poultry keeping while those who are more educated are likely to seek formal employment in offices.

4.2.5 Type of poultry reared

Table 4.5

<table>
<thead>
<tr>
<th>Type of poultry</th>
<th>number of respondents</th>
<th>Percentages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chicken</td>
<td>70</td>
<td>92.1</td>
</tr>
<tr>
<td>Duck</td>
<td>4</td>
<td>5.3</td>
</tr>
<tr>
<td>Others</td>
<td>2</td>
<td>2.6</td>
</tr>
<tr>
<td>TOTAL</td>
<td>76</td>
<td>100.0</td>
</tr>
</tbody>
</table>
From the above, it appears that the dominant type of poultry reared is chicken of the indigenous type which account for 92.1% of the poultry reared. The reason could be that the farmers do not have access to the exotic high productive breeds. 5.3% of the farmers rear ducks and 2.6% rear other types of poultry e.g. quails.
4.2.6 Number of Eggs per hen per month.

Table 4.6

<table>
<thead>
<tr>
<th>Eggs</th>
<th>Frequency</th>
<th>Percentages</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 to 10</td>
<td>54</td>
<td>71.1</td>
</tr>
<tr>
<td>11 to 20</td>
<td>18</td>
<td>23.6</td>
</tr>
<tr>
<td>21 to 30</td>
<td>4</td>
<td>5.3</td>
</tr>
<tr>
<td>TOTAL</td>
<td>76</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Source: Researcher 2013
From table 4.1.6 above, majority of poultry farmers indicate low egg production, where 71.1% state that their poultry lay 0 to 10 eggs, 23.7% show that egg production for single hen in a month is between 11 to 20 and lastly only 5.3% farmers seem to be enjoying poultry keeping as their chicken are high yielding and produce 20 to 30 eggs in a month. The low egg production could be attributed to the various challenges facing the farmers in rearing the poultry.

4.2.7 Returns on investment from poultry products.

Table 4.7

<table>
<thead>
<tr>
<th>Profits</th>
<th>Frequency</th>
<th>Percentages</th>
</tr>
</thead>
<tbody>
<tr>
<td>High returns</td>
<td>9</td>
<td>11.8</td>
</tr>
<tr>
<td>Low returns</td>
<td>67</td>
<td>88.2</td>
</tr>
<tr>
<td>TOTAL</td>
<td>76</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Source:Researcher2013
Majority of poultry farmers, 88.2% indicated very low returns on the investment on poultry farming. 11.8% poultry farmers indicated that they enjoyed high profits. This can be explained by the fact that some farmers may be good at solving most of the challenges likely to face their flocks.
SECTION B

4.3 Effects of marketing on the returns on investment of poultry products.

4.3.1 Marketing channels.

Table 4.8

<table>
<thead>
<tr>
<th>Marketing channels</th>
<th>Frequency</th>
<th>Percentages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Individuals</td>
<td>20</td>
<td>26.3</td>
</tr>
<tr>
<td>hotels/shops</td>
<td>13</td>
<td>17.1</td>
</tr>
<tr>
<td>Middlemen</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Others</td>
<td>43</td>
<td>56.6</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>76</strong></td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>

Source: Researcher-2013
The table shows that majority of poultry farmers who account to 56.6%, do not have access to the marketing channels. No poultry farmers sold the poultry eggs and poultry products to the middlemen and most have never come across a middleman in the marketing of poultry products. Only 17.1% sold the poultry products and poultry to the shops and hotels while 26.3% sold to individuals at the farm gate or individuals. However, 56.6% were others. Others could have meant those farmers who do not sell eggs and poultry meat to anywhere and may use them for subsistence basis or those farmers who may be selling to supermarkets and institutions.
### PRICES OF EGG

#### Table 4.9

<table>
<thead>
<tr>
<th>Prices of an egg</th>
<th>number of respondents</th>
<th>Percentages</th>
</tr>
</thead>
<tbody>
<tr>
<td>6 to 10sh</td>
<td>53</td>
<td>69.7</td>
</tr>
<tr>
<td>11 to 15</td>
<td>17</td>
<td>22.4</td>
</tr>
<tr>
<td>Others</td>
<td>6</td>
<td>7.9</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>76</strong></td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>

Source: researcher 2913

From the table, it is clear that majority of the farmers, 69.7% sell their eggs at very low prices of 6 to 10 sh whereas 22.4% sell at a higher price of 11 to 15 sh per egg. 7.9% comprise of
others who may be those who keep the poultry for subsistence use? The low prices are an indication of low returns on investment of the poultry sector.

4.3.3 Response Rate on access to market.

Table 4.10

<table>
<thead>
<tr>
<th>Availability of market</th>
<th>Number of respondents</th>
<th>percentages</th>
<th>Angles</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>69</td>
<td>90.8</td>
<td>326.88</td>
</tr>
<tr>
<td>Yes</td>
<td>7</td>
<td>9.2</td>
<td>33.12</td>
</tr>
<tr>
<td>TOTAL</td>
<td>76</td>
<td>100.0</td>
<td>360.00</td>
</tr>
</tbody>
</table>

Source: Researcher 2013
Most poultry farmers 90.8% suggested that they do not easily access customers. This could be due to poor marketing skills and lack of information in market accessibility. Also some indicated that the returns were low and so there was no need to access the markets. However 9.2% claim that market is not a big problem to them and that they can easily access customers.

4.3.4 De-motivation due to shortage of market and extent of low returns.

<table>
<thead>
<tr>
<th>Extent of de-motivation and low returns</th>
<th>Number of respondents</th>
<th>Percentage</th>
<th>Angles</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very great extent</td>
<td>25</td>
<td>32.9</td>
<td>118.44</td>
</tr>
<tr>
<td>Great extent</td>
<td>22</td>
<td>28.9</td>
<td>104.1</td>
</tr>
<tr>
<td>Small extent</td>
<td>19</td>
<td>25</td>
<td>90.4</td>
</tr>
<tr>
<td>Not decided</td>
<td>11</td>
<td>14.5</td>
<td>52.6</td>
</tr>
<tr>
<td>TOTAL</td>
<td>76</td>
<td>101.3</td>
<td>52</td>
</tr>
</tbody>
</table>

Source: Researcher 2013

Only 32.9% small-scale poultry confess that they get discouraged from rearing poultry due to shortage of market to a very great extent and this lowered the returns to a very great extent. But 28.9% are discouraged to a great extent and 25% are discouraged to small extent. A few, 14.5% were undecided. These farmers are likely to be the ones who rear poultry for
subsistence purpose and not for the purpose of income generation. There seems to be insignificant difference between those discouraged to a small extent and those discouraged to a great extent.

SECTION B

4.4 Effects of cost of inputs, on the returns on investment.

4.4.1 Use of commercial feeds

Table 4.12

<table>
<thead>
<tr>
<th>Commercial feeding</th>
<th>Number of responses</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Use the feeds</td>
<td>39</td>
<td>51.3</td>
</tr>
<tr>
<td>None use feeds</td>
<td>37</td>
<td>48.7</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>76</strong></td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>

Source: Researcher, 2013
51.3% make use of commercial feed, while those not using them consist of a close figure of 48.7%. Majority of poultry farmers, have hesitated to feed their poultry on commercial feeds probably due to the high cost and may have opted to allow poultry to room freely to scavenge for their own feed resources.

4.4.2 Farmers views towards costs of feeds.

Table 4.14

<table>
<thead>
<tr>
<th>Cost of feeds</th>
<th>Number of responses</th>
<th>Percentages</th>
<th>Angles</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very High cost</td>
<td>66</td>
<td>86.84</td>
<td>312.6</td>
</tr>
<tr>
<td>high cost</td>
<td>6</td>
<td>7.89</td>
<td>28.4</td>
</tr>
<tr>
<td>Low cost</td>
<td>4</td>
<td>5.27</td>
<td>19.00</td>
</tr>
<tr>
<td>Total</td>
<td>76</td>
<td>100</td>
<td>360.0</td>
</tr>
</tbody>
</table>

Source: Researcher data, 2013

EFFECTS OF COST OF FEEDS ON THE RETURNS ON INVESTMENT

- Very High cost: 312.6
- high cost: 28.4
- Low cost: 19
Majority, who account for 86.8% of the poultry farmers pointed out that the cost of inputs such as commercial feeds is very high, 7.9% confessed that the cost was just high and 5.3% felt that cost of feed was low. The farmers who stated that the prices were low maybe those who rarely supplement the feed resources and maybe the once relying on scavenging resources to a large extent. The high cost of inputs could have definitely led to the low returns on investment in the small scale sector given that high costs lower returns.

SECTION C

4.5 Effects of diseases, pests and predators on the returns on investment.

4.5.1 Attack of poultry by diseases, pests, and predators.

Table 4.14

<table>
<thead>
<tr>
<th>pests, diseases, predators attack</th>
<th>Number of responses</th>
<th>percentages</th>
<th>Angles</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>72</td>
<td>94.7</td>
<td>341.1</td>
</tr>
<tr>
<td>No</td>
<td>4</td>
<td>5.3</td>
<td>18.9</td>
</tr>
<tr>
<td>Total</td>
<td>76</td>
<td>100</td>
<td>360.0</td>
</tr>
</tbody>
</table>

Source: Researcher, 2013
Majority of the small scale poultry farmers, 94.7% indicated that they lose their flock through diseases, pests and predation often. However, a small number of poultry farmers of 5.6% indicated that they have not lost poultry through predation. Those who have never lost poultry may have been those who use medication for their poultry.

4.5.2 Extent of low returns on investment through diseases, pests and predation.

Table 4.16

<table>
<thead>
<tr>
<th>Extent of low returns</th>
<th>Number of responses</th>
<th>Percentages</th>
<th>Angles</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very great extent</td>
<td>65</td>
<td>85.5</td>
<td>307.9</td>
</tr>
<tr>
<td>Great extent</td>
<td>8</td>
<td>10.6</td>
<td>37.9</td>
</tr>
<tr>
<td>Small extent</td>
<td>3</td>
<td>3.9</td>
<td>14.2</td>
</tr>
<tr>
<td>Total</td>
<td>76</td>
<td>100.0</td>
<td>360.0</td>
</tr>
</tbody>
</table>
Majority of the small-scale poultry farmers, who account to 85.5% indicate that they experience low returns on investment to a very great extent due to loss of poultry through predation, disease and pests, only 10.6% experience low returns to a great extent and 3.9% to a small extent. Probably the 3.9% are the farmers who give vaccines to their poultry and so don’t lose them in case of outbreaks of diseases.

SECTION D

4.6 Effects of poultry farmers management skills on the returns on investment.

4.6.1 Skills and training by the farmers and access to information.

Table 4.17

<table>
<thead>
<tr>
<th>Training of farmers</th>
<th>Number of respondents</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trained</td>
<td>3</td>
<td>3.9</td>
</tr>
<tr>
<td>Untrained</td>
<td>73</td>
<td>96.1</td>
</tr>
<tr>
<td>Total</td>
<td>76</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Source: Researcher 2013
From the table above, it is clear that most poultry farmers have not received any form of formal training as 96.1% indicate they have not been trained and only 3.9% have been trained.

4.18 Extent to which shortage of skills of farmers has lowered the returns on investment.

<table>
<thead>
<tr>
<th>Extent of low returns</th>
<th>Number of respondents</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very great extent</td>
<td>17</td>
<td>22.4</td>
</tr>
<tr>
<td>Great extent</td>
<td>23</td>
<td>30.2</td>
</tr>
<tr>
<td>Small extent</td>
<td>36</td>
<td>47.4</td>
</tr>
<tr>
<td>Total</td>
<td>76</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Source: Researcher 2013
Majority of poultry farmers, feel that shortage of skills, has not contributed much into the lowering of the returns on investment in the poultry sector as 47.4 % indicated that the effect was to a small extent. 30.2 % of the farmers indicate that shortage of farmers skills, lowered the returns to a great extent while 22.4 % felt that shortage of management skills contributed to the low returns on investment to a very great extent.
CHAPTER FIVE

5.0 Summaries, conclusions and recommendations.

5.1 Introduction

This chapter presents the summaries of the study in relation to the objectives outlined in chapter one. It also highlights the recommendations, limitations and suggestions for further research.

5.2 Discussions and conclusions.

The study establishes that the small scale poultry sector is faced by a number of challenges that has affected the returns on investment in the sector.

The findings show that 26% of the poultry farmers sell their poultry and poultry products to individuals at very low prices of 6 to 10 sh per egg and that many have no access to market. This is in agreement with the findings of the study done by Safaloah, 2005 in Malawi, where the major constraints in rural chicken marketing in order of priority were identified as low prices, low marketable output, and long distances to reliable markets.

According to the study, 32.9% of the farmers confessed that the low prices de-motivated them from rearing poultry and this lowered the numbers reared. According to 82.9% of the farmers, de-motivation led to lowering of the returns on investment. Very few farmers had access to urban markets in the shops and hotels as was indicated by 90% of the poultry farmers. Hence most confessed of low customers for the eggs and meat in the rural areas. All the poultry farmers indicated absence of the middlemen in the marketing of their products. This is in
disagreement with the findings of Nyange, (2005) who argues that low profits by indigenous chicken farmers are due to exploitation by middlemen.

The study established that the cost of inputs especially the feeds were prohibitive to the rearing of poultry. The study indicated that 48.7% did not feed the poultry on commercial feeds due to the high costs while 86.6% of the farmers indicated that poultry rearing does not cover all the production costs. However, most farmers did not prefer buying young chicks and they said they'd rather hatch their own due to the prohibitive costs. The study established that 85.5% poultry farmers experienced low returns to a great extent due to loss of poultry as a result of diseases, pests and predators attack.

The study shows that 92.7% of the respondents indicated that pests, diseases and predators were prevalent in Tetu location and were the major causes of high mortality in poultry. The farmers confirmed that the high mortality in poultry made them to incur huge losses in the poultry business. This is in agreement with, Ondwassy, (2006), who said that disease and pest risks are recognized as a major constraint in smallholder poultry production. The cost of medication was also considered to take up part of the proceeds from the poultry business and also negatively impacted on returns in the poultry industry.

The study establishes that most of the farmers lacked any form of training such that only 3.9% had attended workshops, seminars and tertiary education in poultry rearing. Majority of the farmers admitted that they did not have time to listen to the media or read newspapers and did not engage in any formal training. Therefore, most farmers lack the business experience and expertise to rear poultry. Chigunta, (2001) argues that these factors push the potential small scale enterprises into high risk and low value where failure is likely to be highly probable. Farmers lack an in-depth knowledge, skills and strategies on how to solve the practical
problems in the area of disease control, housing and marketing of poultry products. The study revealed that, management skills do not play a significant role in determining the returns on investment in the poultry industry. This was shown by the fact that 47.4% of the poultry farmers indicated that management skills affected them to a small extent while 22.2% affected them only to a large extent.

Conclusions:

The main factor that have contributed greatly to the low returns on investment in the small scale poultry industry is the costs of inputs especially the commercial feeds and cost of medication. Poultry farmers have also been unable to purchase young chicks due to high prices and these results in low numbers of chicken, fewer eggs and meat.

It has been noted that marketing present's challenges to poultry farmers as most of the farmers cannot access market outlets and therefore most become de-motivated to rear poultry. The result is that poultry farmers rear fewer chicken and this has translated to low eggs and meat production. Lack of market access has resulted in most farmers engaging in subsistence poultry keeping as opposed to market-oriented poultry farming in the rural areas.

It is clear that pests, diseases and predators have resulted in very high mortalities which reduce the flock sizes and this in turn lowers the eggs and meat production. However, it was further noted that management skills are not a significant determinant of the returns on investment in the poultry sector as majority of the farmers were not trained and seemed to be doing well in the poultry industry and had no complains of low returns.

5.3 Recommendations

The following recommendations are made based on the results from the study:
Past attempts to improve poultry production in Kenya have been focused on introduction of highly productive exotic breeds that require high level of management and inputs. Very little or no attention has been given to the indigenous breeds in the small-scale poultry sector. Therefore Government and other policy-makers should lay more emphasis on the small-scale poultry sector as it is an important sector in the rural areas. There is need to solve the most urgent problems facing the small scale poultry sector if the returns on investment in the sector are to improve.

Rural chicken can be improved through formation of marketing groups and training of farmers in enterprise development. Farmers may be encouraged to participate in groups aimed at enhancing marketing skills. A shift from subsistence to market-oriented production system is necessary and establishing a stable marketing chain is important so that farmers could obtain premium price for their products.

The government should subsidize the cost of feeds and medication to the small-scale poultry farmers. Taxes that are included in the purchase of inputs should also be reduced in order to make the inputs affordable to farmers.

There is need for appropriate intervention by the various stakeholders and policy-makers in disease and predator control activities so as to reduce chicken mortality and improve productivity. Control of diseases, mainly NCD, could be achieved through improvement in veterinary and advisory services.

The productivity of scavenging village chicken could be enhanced by changes in management techniques (feeding, housing and health care) and include those techniques that promote improvement in productivity and reduction in mortality. Technical support to farmers'
experience or knowledge of supplementary feeding and watering can improve productivity of local chicken;

Training for both farmers and extension staff focusing on disease control, improved housing, and feeding, marketing and entrepreneurial skills could help to improve productivity of local chicken. Most of chicken are managed by women farmers, therefore provision of trainings on chicken husbandry practices to women is essential. Poultry farmers' knowledge and skills should be emphasized in schools and other training institutions. Training forums such as seminars, workshops, should be availed and encouraged to the small-scale poultry farmers.

5.4 Limitations of the study

Some respondents had difficulties comprehending the set of questions in the questionnaires. This made the researcher to spare more time to guide them in answering the questions. A few respondents did not return back the questionnaires but the researcher got enough information from those that were returned.

5.5 Suggestions for further research.

The researcher suggests that more studies should be carried out in the following areas:

A study to investigate the demand for indigenous chicken eggs in the urban areas of Kenya.

A study to characterize small-holder poultry marketing systems in the rural areas of Kenya.

Performance of exotic poultry breeds managed by small-holder farmers in Kenya.
REFERENCE


Barman, L. (2009) Studies on the epidemiology of Newcastle disease in village chickens in Bangladesh. MSc-thesis. The Royal Veterinary and Agricultural University, Denmark


Branckaert, R.D.S and Gueye (2005). FAO’s programmes for support to family poultry production, In proceeding workshop on poultry as a tool in poverty eradication and promotion of gender equality held march 22 to 26, 1999, Tune Landboskole, Denmark.


Kothari, C.R. (2004) Research Methodology, Methods and Techniques (2nd Ed) new Delhi,


Mburu, B.M., 2002. The role of in poultry production and development. In: proceedings the first workshop on poultry research priority setting held at Kenvash Hotel-Naivasha, 18th-19th October,.


Greece.


Dear Sir/Madam,

RE: QUESTIONNAIRE OF A PROPOSAL

My research topic is "challenges affecting the returns on small scale poultry sector in Kenya: a case study of Tetu Location, Nyeri county. I would be very grateful if you would complete the enclosed questionnaire. I confirm that the information gathered from this study will be confidential for academic research purposes. Your participation is very important to this research, and I would ask you to respond correctly and carefully. Your prompt response will be appreciated.

Thank you.

Yours Faithfully,

MARY NDURIRI.
(Please tick where appropriate and/or answer as appropriate)

1 (a) Gender

(i) Male {} (ii) Female {}

(b) location ---------------

(c) Sub location

(i) Ichagaciru {} (ii) Gatumbiro {} (iii) karaihu {}
(iv) Kirurumi {} (v) kigogo-ini {}

2. In which age group are you?

Below 30 years {} Between 30 and 40 years {} Above 40 years {}

3. What is your education level?

(i) KCPE {} (ii) KCSE {} (iii) CERTIFICATE {}
(iv) DIPLOMA {} (v) DEGREE {}
(vi) OTHERS {}

4. What type of poultry do you rear?

(i) Chicken {} (ii) Ducks {} (iii) Others {}

5. How many birds do you rear?

(i) Less than 20 {} (ii) 20 to 50 {} (iii) More than 50 {}

6. How many eggs does each one of your poultry produce on average per month.

66
(7)(a) What type of poultry breeds do you rear?

(i) Indigenous breeds  (ii) Exotic breeds (iii) Others

(b) Do you think rearing of indigenous poultry in 7(a) above gives you good profits?

(i) Yes (ii) No

MARKETING OF POULTRY AND POULTRY PRODUCTS

1(a) Which one of marketing channels do you use to sell your poultry and poultry products?

(i) Farm gate/ to individuals  (ii) Supermarket, Hotels, Shops, Institutions

(iii) Middlemen (brokers)  (v) None of the above

(b) How much do you sell per eggs?

(i) 6sh to 10sh (ii) 10sh to 15sh others

(c) If you sell your poultry and poultry products, how much money do you sell a cock

(i) Less than 400sh (ii) Between 401 and 600sh

(iii) More than 600sh. (iv) None of the above

(d) What is the cost of rearing one of your cocks?

(i) 300sh to 400sh (ii) Between 400 and 600sh (iii) More than 600sh

(e) To what extent do you get discouraged to rear poultry due to low prices offered by buyers?

(i) Great extent (ii) small extent (iii) Not affected
(f) If you get discouraged, does it also lower your returns on investments in poultry negatively?

   (i) Yes { }       (ii) No { }       (iii) Not decided { }

(g) Have the low prices of poultry and poultry products affected your attitude on poultry farming?

   (i) Yes { }       (ii) No { }       (iii) Not decided { }

(e) Are you able to easily get customers for your eggs and poultry?

   (i) Yes { }       (ii) No { }

(f) If your answer is No in (e) above, to what extent do you get discouraged to rear poultry and hence lowering your returns on investment?

   (i) Great extent { }   (ii) small extent { }   (iii) Not decided { }

SECTION B

COSTS OF INPUTS AND THE RETURNS ON POULTRY

(1) (a) Do you feed your poultry on the commercial poultry feeds?

   (i) Yes { }             (ii) No { }

(2) (a) Does poultry rearing cover or pay for all the production cost?

   (i) Yes, it pays { }   (ii) No, it doesn’t pay { }

(b) Have the high production cost lowered the returns on investment of your poultry.
(i) Yes, it pays  {  }  (ii) No, it doesn’t pay  {  }

(b) Have the high production cost lowered the returns on investment of your poultry.

(i) Yes  {  }  (ii) No  {  }

(3). Do you buy the young chicks?

(i) Yes  {  }  (ii) No  {  }

(4). If yes, how much do you buy a young chick?

(i) Less than Sh 100  {  }  (ii) Between Sh 100 and Sh 250  {  }

5(a) Has there been an increase in the prices of young chicks in the last six years?

(i) Yes  {  }  (ii) No  {  }

(b) If yes, has the increase in the prices of young chicks resulted in lower production of poultry products?

(i) Yes  {  }  (ii) No  {  }

(6) Do you give any medication to your poultry?

(i) Yes  {  }  (ii) No  {  }

(7) What do you feel about the cost of the vaccines or any medication?

(i) Very high costs  {  }  (ii) Fair costs  {  }

(8) a) Have cost of inputs affected your poultry business negatively leading to low returns?

(i) Yes  {  }  (ii) No  {  }

69
SECTION C

PREDATORS, DISEASES AND PESTS

1(a) Have you ever lost your chicken through Diseases, Pests and predation?

(i) Yes  { }  (ii) No  { }  (iii) Others  { }

(b) If yes in (a) and (b) above, what was the extent

(i) Great  { }  (ii) Average  { }  (iii) Low  { }  (iv) None of the above  { }

2(a) Do you clean and spray your poultry house against pests and diseases?

(i) Yes  { }  (ii) No  { }

(b) Do you think the unhygienic conditions affect the health of your poultry negatively and so leading to low returns on investments (profits) of poultry.

i) Yes  { }  ii) No  { }

d) Has predation, diseases and pests affected your poultry business negatively leading to low returns (profits)?

(i) Yes  { }  (ii) No  { }
SECTION D

MANAGEMENT SKILLS

1(a) Have you ever been trained on how to treat poultry in times of sickness, best feeds or improve your poultry breeds may be by extension agricultural officers?

   (i) Yes { }        (ii) No { }

(b) If you have not been trained, do you think shortage of management skills has affected the returns on investment of poultry farming?

   (i) Yes { }        (ii) No { }        (iii) None of the above { }

(c) If your answer is yes in (c) above to what extent has lack of management skills on poultry farming led to the low returns (profits) on poultry?

   (i) Great extent { }        (ii) Low extent { }        (iii) None of the above { }

(d) Do you get time to listen to radios, read Newspapers, or listen to TV, to get information such as marketing of poultry?

   (i) Yes { }        (ii) No { }
## APPENDIX 11 A

### Time Schedule

<table>
<thead>
<tr>
<th>Activity</th>
<th>Period of time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Selection of topic</td>
<td>1 day</td>
</tr>
<tr>
<td>Drafting concept paper</td>
<td>4 days</td>
</tr>
<tr>
<td>Development of the research proposal</td>
<td>5 months</td>
</tr>
<tr>
<td>General survey of the location</td>
<td>3 weeks</td>
</tr>
<tr>
<td>Developments of research instruments</td>
<td>2 days</td>
</tr>
<tr>
<td>Pilot study</td>
<td>3 days</td>
</tr>
<tr>
<td>Revising the research instruments</td>
<td>2 days</td>
</tr>
<tr>
<td>Data collection</td>
<td>2 weeks</td>
</tr>
<tr>
<td>Data analysis and report writing</td>
<td>3 weeks</td>
</tr>
<tr>
<td>Handing in the project</td>
<td>4 days</td>
</tr>
<tr>
<td><strong>TOTAL DURATION</strong></td>
<td><strong>7 MONTHS 3 WEEKS</strong></td>
</tr>
</tbody>
</table>

**SOURCE: RESEARCHER 2013**
APPENDIX I

BUDGET

<table>
<thead>
<tr>
<th>Budget Items</th>
<th>Unit Cost</th>
<th>Total Qty</th>
<th>Total cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Photocopy of Questionnaires -3pages @2</td>
<td>6</td>
<td>358</td>
<td>2148</td>
</tr>
<tr>
<td>shilling/page</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Transport for the researcher @500/person/day</td>
<td>500</td>
<td>30</td>
<td>15000</td>
</tr>
<tr>
<td>Remuneration one research assistant @ 1000/person/day</td>
<td>1000</td>
<td>30</td>
<td>30000</td>
</tr>
<tr>
<td>Incidental cost( stationery)</td>
<td>1000</td>
<td>1</td>
<td>1000</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td>48148</td>
</tr>
</tbody>
</table>

SOURCE: RESEARCHER, 2013